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# JAPANESE BEETLE



Adult beetles feeding on fruit and leaves, about one-half natural size. Insert, adult beetle, about twice natural size. Figures below ground represent seasonal history of the Japanese beetle. Left to right, mature grub (late spring); pupa; beetle laying eggs (summer); developing grubs (late summer and fall); all about twice natural size.

(See other side for life history and control)

# JAPANESE BEETLE

(*Popillia japonica* Newman)

## Life History

Japanese beetles spend about 10 months of the year as grubs in the soil, feeding on the roots of grasses and other plants. Early in June the grubs stop feeding and go through a resting, or pupal, stage, at the end of which they become beetles. By the first part of July the beetles are flying about in numbers and feeding extensively on the foliage, fruit, and blossoms of many trees and plants. During July and August the females go into the ground and lay eggs, which hatch into small grubs. Grubs are usually more abundant in turf than in other situations.

## Control of the Beetle

The foliage of trees, shrubs, and flowering plants can be protected from beetle attack with the following sprays:

1. DDT (50-percent wettable powder), 3 ounces (16 tablespoonfuls); water, 10 gallons (for fruit and shade trees, shrubs, and flowering plants).
2. Lead arsenate, 10 ounces (30 tablespoonfuls); wheat flour, 6 ounces (24 tablespoonfuls), or light-pressed fish oil, 2½ fluid ounces (5 tablespoonfuls); water, 10 gallons (for shade trees and shrubs).
3. Powdered derris (4-percent rotenone), 5 ounces (30 tablespoonfuls); water, 10 gallons (for apple, plum, cherry, and peach trees, grapes, and small fruits when fruit is about to ripen, and flowering plants).

Where spraying equipment is not available, apply a 5-percent DDT dust or hydrated dusting lime.

Apply the spray or dust when the beetles first appear. Repeat as needed to maintain a protective coating on all parts of the plant subject to attack, until the beetles disappear. Dusts must be applied more often than sprays.

## Control of Grubs

*Use of Poisons.*—Lawns may be protected from injury by Japanese beetle grubs for at least 5 years with one application of DDT and for at least 2 years with one application of chlordane. Use 6 pounds of a 10-percent DDT powder or 2¼ pounds of a 10-percent chlordane powder to each 1,000 square feet of lawn. Mix the material with several times its volume of slightly moist sand, soil, or other suitable material, and apply evenly to the lawn with a garden-type fertilizer distributor or by hand. Wash the material in with a hose.

*Use of Milky Disease.*—Japanese beetle grubs are subject to a number of diseases, the most important of which is the milky disease. Several dust mixtures containing spores of the organism causing this disease are available commercially. They are preferably applied by community groups, but may be used by individuals. Directions are on the package. The disease usually works slowly, and its full effect may not be evident for several years. Although it kills grubs in the soil, it does not prevent beetles from flying in from untreated areas. It is harmless to all other forms of plant and animal life.

## PRECAUTIONS IN USING DDT, CHLORDANE, AND LEAD ARSENATE

DDT, chlordane, and lead arsenate are poisons, but when used as recommended are not likely to injure human beings, pets, wildlife, or vegetation. Avoid inhaling the dust. Protect the hands with leather or rubber gloves. Keep the hands away from the mouth and wash them thoroughly before eating. Do not spray fruits with DDT later than 4 weeks before picking. Wash sprayed or dusted fruits or vegetables before eating them. Keep the poison in plainly labeled closed containers away from food products, and where children or pets cannot reach them. Keep small children and domestic animals away from poisoned turf until it has been watered or rain has fallen.

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